

**METHOD AND SYSTEM FOR CONVERTING CARBONACEOUS
FEEDSTOCKS INTO ENERGY WITHOUT GREENHOUSE GAS EMISSIONS**

ABSTRACT OF THE DISCLOSURE

5 The process and system of the invention converts carbonaceous feedstock
such as coal, hydrocarbon oil, natural gas, petroleum coke, oil shale, carbonaceous-
containing waste oil, carbonaceous-containing medical waste, carbonaceous-containing
hazardous waste, carbonaceous-containing medical waste, and mixtures thereof into
electrical energy without the production of unwanted greenhouse emissions. The process
10 and system uses a combination of a gasifier, e.g., a kiln, operating in the exit range of at
least 700° to about 1600°C (1300-2900°F) to convert the carbonaceous feedstock and a
greenhouse gas stream into a synthesis gas comprising mostly carbon monoxide and
hydrogen without the need for expensive catalysts and or high pressure operations. One
portion of the synthesis gas from the gasifier becomes electrochemically oxidized in an
15 electricity-producing fuel cell into an exit gas comprising carbon dioxide and water. The
latter is recycled back to the gasifier after a portion of water is condensed out. The
second portion of the synthesis gas from the gasifier is converted into useful hydrocarbon
products.